

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method of generating a free-form surface model by a rounding operation, comprising:

applying linear transformation to a lattice polygon model to generate vertices of a free-form surface model corresponding to respective vertices of the lattice polygon model;  
and

generating control points of cubic Bezier curves that connect the vertices of the free-form surface model, and that correspond to respective edges of the lattice polygon model.

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Claim 2 (Previously Presented): The method as claimed in claim 1, further comprising:

interpolating Gregory patches into a mesh comprised of the cubic Bezier curves.

Claim 3 (Previously Presented): The method as claimed in claim 1, further comprising:

adding rounding information to the lattice polygon model, the rounding information controlling how round the free-form surface model is when the free-form surface model is generated from the lattice polygon model and the rounding information,

wherein said applying linear transformation includes generating the vertices of the free-form surface model by utilizing the rounding information.

Claim 4 (Original): The method as claimed in claim 3, wherein said rounding information includes rounding information attached to the vertices and the edges of the lattice polygon model.

Claim 5 (Previously Presented): The method as claimed in claim 1, further comprising:

reconstructing the lattice polygon model from the free-form surface model by utilizing an inverse transformation of the linear transformation.

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Claim 6 (Previously Presented): A computer-readable memory medium having a program embodied therein for causing a computer to generate a free-form surface model by a rounding operation, said program comprising program code units configured to perform:

applying linear transformation to a lattice polygon model to generate vertices of a free-form surface model corresponding to respective vertices of the lattice polygon model; and

generating control points of cubic Bezier curves that connect the vertices of the free-form surface model, and that correspond to respective edges of the lattice polygon model.

Claim 7 (Previously Presented): The computer-readable memory medium as claimed in claim 6, further comprising:

interpolating Gregory patches into a mesh comprised of the cubic Bezier curves.

Claim 8 (Previously Presented): The computer-readable memory medium as claimed in claim 6, further comprising:

adding rounding information to the lattice polygon model, the rounding information controlling how round the free-form surface model is when the free-form surface model is generated from the lattice polygon model and the rounding information,

wherein said applying linear transformation includes generating the vertices of the free-form surface model by utilizing the rounding information.

Claim 9 (Original): The computer-readable memory medium as claimed in claim 8, wherein said rounding information includes rounding information attached to the vertices and the edges of the lattice polygon model.

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Claim 10 (Previously Presented): The computer-readable memory medium as claimed in claim 6, further comprising:

reconstructing the lattice polygon model from the free-form surface model by utilizing an inverse transformation of the linear transformation.

Claim 11 (Previously Presented): A method of transmitting 3D data via a network, comprising:

adding rounding information to a lattice polygon model, the rounding information controlling how round a free-form surface model is when the free-form surface model is generated from the lattice polygon model and the rounding information by applying linear transformation to the lattice polygon model to generate vertices of the free-form surface model corresponding to respective vertices of the lattice polygon model, and generating control points of cubic Bezier curves that connect the vertices of the free-form surface model, and that correspond to respective edges of the lattice polygon model; and

transmitting the lattice polygon model and the rounding information over the network.

Claim 12 (Previously Presented): A method of generating a free-form surface model, comprising:

receiving a lattice polygon model and rounding information via a network;

applying linear transformation to the lattice polygon model to generate vertices of a free-form surface model corresponding to respective vertices of the lattice polygon model;

and

generating control points of cubic Bezier curves that serve as edges to connect the vertices of the free-form surface model, and that correspond to respective edges of the lattice polygon model, wherein the rounding information controls how close the vertices and edges of the free-form surface model are to the respective vertices and edges of the lattice polygon model.

Claim 13 (Original): A server device for transmitting 3D data via a network, configured

to add rounding information to a lattice polygon model, the rounding information controlling how round a free-form surface model is when the free-form surface model is generated from the lattice polygon model and the rounding information by applying linear transformation to the lattice polygon model to generate vertices of the free-form surface model corresponding to respective vertices of the lattice polygon model, and generating control points of cubic Bezier curves that connect the vertices of the free-form surface model, and that correspond to respective edges of the lattice polygon model; and

to transmit the lattice polygon model and the rounding information over the network.

Claim 14 (Original): A client device connected to a network, configured

to receive a lattice polygon model and rounding information via the network; to apply linear transformation to the lattice polygon model to generate vertices of a free-form surface model corresponding to respective vertices of the lattice polygon model; and

to generate control points of cubic Bezier curves that serve as edges to connect the vertices of the free-form surface model, and that correspond to respective edges of the lattice polygon model,

wherein the rounding information controls how close the vertices and edges of the free-form surface model are to the respective vertices and edges of the lattice polygon model.

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Claim 15 (New): The method as claimed in claim 1, wherein said rounding operation allows an inverse rounding operation to reconstruct the lattice polygon model from the free-form surface model.

Claim 16 (New): The method as claimed In claim 6, wherein said rounding operation allows an inverse rounding operation to reconstruct the lattice polygon model from the free form surface model.

